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of culture, of cranial forms, of geographic position, of historic references, he had been led to the conviction that they belonged to the Berber or Libyan groups, that vast ethnic stock which occupied the whole of north Africa, west of the Nile Valley, above the Soudan. His arguments seemed to myself and others quite sufficient, at least in the present stage of the investigation.

What is especially noteworthy is the fact that civilization was highest on their arrival. Later it degenerated, and finally became absorbed in the Egyptian. Therefore, if Professor Petrie is right in his identification, we must credit to the Numidian-Libyan tribes of the fourth millenium B. C. a culture of native growth higher in many respects (though inferior in others) to that of the Egyptians who were their contemporaries.

Of the many and brilliant discoveries we owe to the indefatigable zeal of Professor Petrie, this last, of which I give this cursory account, is perhaps the most important for the history and ethnography of the Nile Valley and northern Africa.

D. G. BRINTON.

LONDON, Aug. 3.

#### CURRENT NOTES ON PHYSIOGRAPHY (XIV.).

##### FOUREAU'S EXPEDITION INTO THE SAHARA.

FOR the third time, Foureau has been repulsed by the Touaregs in his attempt to cross the desert and reach the inland district of Air. The nomads resent the intrusion of European explorers, and do not wish to hear of commerce or trans-Saharan railways. Although not an expert in geographical description, Foureau's account of his unfortunate expedition gives many interesting sketches of the *hammada*, or rugged sandstone uplands, too stony for camels to cross; the *erg*, or sandy areas of the lower lands, with chains of dunes trending N. E. -S. W., as if controlled by the trade winds; the numerous *wadies*, or stream courses,

universally adopted as routes of travel, although caravans are here sometimes overwhelmed by floods from which there is no escape where the walls are steep. Gently sloping plateaus (*hammada*), dissected by long consequent valleys to the north and broken by short and steep obsequent streams on their south-facing escarpments, are characteristic features of the regions south of Wargla, in latitude  $27^{\circ}$ . Much of the surface near the wadies is minutely dissected, and would be called 'bad lands' by our Western explorers. The barrenness of the stony plateaus is complete; but along the wadies there are acacias and scattered herbage on which horses and sheep find a scanty pasture. A little wheat is raised on the flood plains. Swarms of grasshoppers sometimes consume the vegetation. The people are excessively poor, and all are great beggars, clamoring for gifts. In November, 1893, minima of  $-6^{\circ}$  C. were recorded several times; sleeping without a tent, the explorer's blanket was covered with frost nearly every morning. Although suffering from cold, Foureau found, on the other hand, plenty of water in pools along the wadies, for in the five winter months of 1893-'94 there was rain on twenty-two days. Snow was seen on the plateaus. On several mornings there was dense fog. The Touaregs thought the cold spell was brought by the explorers. Moufflons were seen on the *hammadas*, and antelopes were common on the *erg* districts (Bull. Soc. géogr., Paris, XVI., 1895, 10-74).

##### LACCOLITIC MOUNTAIN GROUPS.

THE fourteenth annual report of the United States Geological Survey contains an interesting chapter on the laccolitic mountain groups of Colorado, Utah and Arizona, by Whitman Cross. It serves as an extension of the report on the Henry mountains by Gilbert of some years ago. While the chief value of this chapter is in

its discussion of structural and petrographical problems, it is of use to the physiographer also in giving excellent description and illustration of typical examples belonging to this peculiar member of the volcanic group of forms. It may thus serve as a corrective to the undue share of attention ordinarily allowed to the superficial loose-textured and short-lived volcanic cone. It serves also to enforce the idea that the surface of the land as we see it is often deeply carved in land of earlier times; truly a primitive geological conception, but one which geographers have been slow to recognize and utilize.

#### THE RUN-OFF OF RIVERS.

THE same report of the survey contains a chapter by F. H. Newell on the results of stream measurements, in which an important relation is indicated between rainfall and topography, on the one hand, and 'run-off,' on the other. For example, where the mean annual rainfall on mountainous regions is 40 inches, the run-off approaches 30 inches; where the rainfall is 25 inches, the run-off is 15; where the rainfall is 12, the run-off is only 5. On more open country, where the mean annual rainfall is 50 inches, a run-off of 25 inches may be expected; where the rainfall is 30 inches, the run-off is about 8 inches; while where the rainfall is 20 inches, only about 3 inches gets into the streams. In both mountainous and open country, the percentage of run-off rapidly decreases as the rainfall lessens. One notable exception to this rule is noted. In regions of small rainfall, under twelve inches, the rain usually falls at long intervals, but then at an excessive rate, often as 'cloud bursts.' In such cases the water has little time to penetrate the ground, and the run-off is exceptionally large. An interesting map of the mean annual run-off of our country accompanies this essay.

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#### SCIENTIFIC NOTES AND NEWS.

##### THE BRITISH MEDICAL ASSOCIATION.

THE sixty-third annual meeting of the Association convened in London on July 30th, with an attendance of nearly 3000 members. The growth of the Association in recent years has been remarkable. When it last met in London (1873) the membership was 1500, whereas now it is the strongest medical society of the world, having 15,669 members and property of great value. The address of the president, Sir J. Russell Reynolds, was entitled 'The power of life in life,' and discussed in part the use of 'living things' in the conservation of health and the prevention or cure of disease. The address also reviewed the progress of medicine since the preceding London meeting and the relations of professional life to certain aspects of art and religion. The Association met in fifteen sections, before each of which many papers were presented, followed by discussions of much interest, not only to members of the medical profession, but also to all interested in the progress of science. The Association occupies somewhat the position of a professional trades union, and with its great membership and means and its organ, *The British Medical Journal*, is able to influence, not only the etiquette and practice of the profession, but also legislation. The reports of committees, such as that on Parliamentary bills, and the discussions that followed, were consequently of great practical importance.

##### SECTION C, CHEMISTRY, OF THE A. A. A. S.

THE committee appointed by the Council to prepare a programme for the meetings announce that the Committee after careful consideration believe that added interest may be given to the meetings by providing, in addition to the original papers that may be offered, a series of discussions of subjects of current interest to chemists, in